ABSTRACT OF THE DISCLOSURE

In a chemical decontamination method and a chemical decontaminating system for chemically decontaminating radioactive nuclides from a metallic material surface contaminated by the radioactive nuclides, the method comprise the processes of reductively decontaminating using a reductive decontaminating agent containing at least two kinds of components; and then decomposing the reductive decontaminating agent using a decomposing apparatus for decomposing at least two kinds of chemical substances in the reductive decontaminating agent. In addition, a chemical decontaminating system, which comprises a catalyst decomposition column in an upstream side of an ion exchange resin column and a hydrogen peroxide injection apparatus in a further upstream side in order to reduce an amount of waste products caused by a chemical decontaminating agent in a case where a mixed decontaminating agent for a composition trapped in a cation resin column and for a composition trapped in an anion exchange resin is used for the chemical decontaminating agent, and in order to selectively decompose the composition trapped in a cation resin column in an inlet side of a cleaning apparatus when radioactive nuclides in the decontaminating agent are cleansed using the cation resin column during decontaminating and decompose the both compositions after completion of decontaminating process. The present invention provides a chemical decontamination method using

a decomposing apparatus for selectively decomposing a chemical decontaminating agent which is a component of load to the cation resin column.

Further, the present invention provides a chemical decontamination method which moderates corrosion of material by using a chemical decontaminating agent decomposing apparatus capable of decomposing not only the components trapped by the cation exchange resin but also components trapped by an anion exchange resin at a time.